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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,311	10/25/2000	Minoru Oohira	198778US2DIV	2441

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EXAMINER

ZARNEKE, DAVID A

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

09/695,311

## Applicant(s)

OOHIRA ET AL.

## Examiner

David A. Zarneke

## Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14 is/are allowed.
- 6) ☒ Claim(s) 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

Enclosed is the 1449 from the IDS filed 1/21/03 and the 1449 from the IDS filed 7/ 23/01, as requested by applicant.

### ***Response to Arguments***

Applicant's arguments filed 3/5/02 with respect to the rejection over Haghiri-Tehrani in view of Fjelstad have been fully considered but they are not persuasive.

First, it is argued that Haghiri-Tehrani uses conventional connective elements, while the present invention avoids these conventional connective elements. Also, that a plural set of die bond pads and wire bond pads are formed, which Haghiri-Tehrani fails to teach.

The examiner asserts that the present invention does indeed use conventional connective elements, bond wires specifically (see Figures), as does Haghiri-Tehrani.

Also, the examiner asserts that Haghiri-Tehrani does teach the use of a die bond pad (26) and a wire bond pad (2) (Figure 7).

Further, Haghiri-Tehrani at least implies, if not distinctly teaches, the use of an endless sheet having plural die and wire bond pads thereon, from which the finished modules are stamped out (5, 54+). Regardless, Fjelstad is used in the rejection to teach the use of a plural set of die bond pads and wire bond pads. The rejection is being attacked by reviewing each reference individually, as opposed to viewing the rejection as a combination of references.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Second, it is asserted that Haghiri-Tehrani and Fjelstad are uncombinable because they apply to different products. Specifically, the Haghiri-Tehrani reference shows how a single IC is connected to contact surfaces on an ID card. It would not make any sense to modify Haghiri-Tehrani to include the step of separating individual package chips because such separation would require destroying the ID card and because the ICs 22 are applied to the ID cards one at a time. Moreover, there is no advantage to modifying Haghiri-Tehrani to include multiple packaged chips on a sacrificial layer, as taught by Fjelstad. Put simply, the ID card in the Haghiri-Tehrani patent cannot be treated as a sacrificial layer 100, which is cut up in the Fjelstad patent.

The examiner takes the position that one very easily could make the invention of Haghiri-Tehrani into a continuous band of ID cards that are separated into individual packages. As noted previously, Haghiri-Tehrani at least implies, if not distinctly teaches, the use of an endless sheet having plural die and wire bond pads thereon, from which the finished modules are stamped out (5, 54+). Therefore, the combination of Haghiri-Tehrani with Fjelstad is most certainly possible and one of ordinary skill in the art would most definitely be motivated to attempt this combination.

Applicant's arguments, filed 3/5/02, with respect to the rejection over Hiroyuki in view of Fjelstad have been fully considered and are persuasive. Therefore the rejection of claims 8 and 10 over Hiroyuki in view of Fjelstad has been withdrawn.

Therefore, the claims are rejected as taught in the previous office action. These rejections are re-stated below.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haghiri-Tehrani, U.S. Patent No. 5,756,379, in view of Fjelstad, U.S. Patent No. 6,001,671.

With regard to claim 8, Haghiri-Tehrani discloses forming a die bond pad and wire bond pads by fastening electrically conductive metal sheets at specified positions on the back of an insulating sheet and making apertures in the insulating sheet on the metal sheets (see column 3, lines 26-28 and figures 4 and 5), packaging for fastening the back of the discrete semiconductor element to the die bond pad and electrically connecting the electrodes of the discrete semiconductor elements on the wire bond pads (see column 4, lines 27-29 and figure 7), sealing the discrete semiconductor element installed on the insulating sheet with an integral sealing resin by sealing the packaging surface of the insulating sheet with the resin (see column 4, lines 39-41 and figure 7).

Haghiri-Tehrani fails to disclose forming a plurality of sets of die bond and wire bond pads (and the subsequent formation of a plurality of discrete semiconductor elements; and dividing the sealing resin into discrete semiconductor devices by cutting off the sealing resin around the discrete semiconductor devices by cutting off the sealing resin around the discrete semiconductor elements.

Fjelstad discloses forming a plurality of sets of die bond and wire bond pads (and the subsequent formation of a plurality of discrete semiconductor element), and dividing the sealing resin into discrete semiconductor devices by cutting off the sealing resin around the discrete semiconductor devices by cutting off the sealing resin around the discrete semiconductor elements (see column 4, lines 1-4 and column 5, lines 10-11).

It would have been obvious to one skilled in the art at the time of the invention to form a plurality of discrete semiconductor elements and divide them after assembling the package because it is cost effective to produce a numerous semiconductor elements on a wafer and then to divide the wafer into discrete devices.

With regard to claim 9, Haghiri-Tehrani discloses wherein the step of packaging also includes a step of fastening the back side electrode of the discrete semiconductor device onto the die bond pad to electrically connect the die bond pad and the back side electrode (see column 4, lines 27-39).

It would have been obvious to one skilled in the art at the time of the invention to fasten the back side electrode of the discrete semiconductor device onto the die bond pad to electrically connect the die bond pad and the back side electrode because

fastening the discrete semiconductor to the die bond pad promotes the electrical connection of the die and the electrodes.

With regard to claim 10, Haghiri-Tehrani fails to disclose wherein the dividing step also be a step of cutting off the sealing resin around a plurality of discrete semiconductor elements grouped as a single body, to obtain the discrete semiconductor device wherein the plurality of discrete semiconductor elements are sealed with the integral resin (see figure 5H).

Fjelstad discloses wherein the dividing step also be a step of cutting off the sealing resin around a plurality of discrete semiconductor elements grouped as a single body, to obtain the discrete semiconductor device wherein the plurality of discrete semiconductor elements are sealed with the integral resin.

It would have been obvious to one skilled in the art at the time of the invention to obtain a discrete semiconductor device by cutting of the sealing resin around the plurality of discrete semiconductor elements because it is well known to separate a plurality of semiconductor devices into discrete semiconductor elements.

#### ***Allowable Subject Matter***

As noted by the previous examiner in the previous office action, Claims 11-14 have been allowed over the prior art.

The previous examiner stated that the following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to disclose a cut-off

step of cutting off the metal sheet by cutting therein from the back thereby to turn the metal sheet into die bond pads and wire bond pads which are arranged at intervals.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-F 10AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703)-305-9883. The fax phone numbers for the organization where this application is assigned are (703)-308-7722 for regular communications and (703)-308-7721 for After Final communications.



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Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703)-308-0956.

David A. Zarneke  
May 27, 2003

*David A. Zarneke*  
*Art 2827*